# Factors associated with patient safety and infection control: A scoping review

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# Factors associated with patient safety and infection control: *A scoping review*

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**Abstract**

**Background:** In an effort to enhance patient safety in hospitals, preventing infection risks has become a crucial aspect. This research addresses the complexity of patient safety challenges by exploring the implementation of infection risk prevention in hospitals.
**Purpose:** To analyze the practices of infection risk prevention, factors influencing patient safety, and innovative efforts to achieve optimal patient safety.
**Method:** The study utilizes a scoping review approach based on the Arksey and O'Malley framework. Searches for articles were carried out on PubMed and Google Scholar using pertinent keywords. The inclusion criteria encompass research conducted in hospitals, evaluations of patient safety, articles in either English or Indonesian languages, and publications from the past five years.
**Results:** Data analysis reveals that infection risk prevention involves actions such as hand hygiene, isolation, the use of personal protective equipment (PPE), sterilization, vaccination, and medical waste management. Factors influencing patient safety include safety culture, healthcare staff training, information systems, and environmental design. Innovative efforts involve health information management, patient engagement, regular training, and integrated services.
**Conclusion:** Effective implementation of patient safety practices requires the engagement of all stakeholders and a sustainable safety culture. This research provides an in-depth understanding of patient safety practices in hospitals, identifies challenges, and details innovative efforts to achieve optimal patient safety.

**Keywords: Hospital; Infection Risk Prevention; Patient Safety; Patient Safety Culture.**

## INTRODUCTION

Amid technological progress and the evolution of global healthcare systems, patient safety stands as a cornerstone in providing top-notch healthcare services. This concept covers a broad spectrum, from averting medical mistakes to safeguarding patients against potential risks and harm during their medical journey. As outlined in the 2017 Regulation by Indonesia's Health Minister on Patient Safety, prioritizing patient safety is paramount for healthcare professionals and serves as a barometer for healthcare system excellence. The seven standards for Patient Safety encompass patient rights, educating patients and their families, maintaining safety throughout care processes, utilizing performance metrics for ongoing improvement, leadership's role in fostering safety, staff training on safety protocols, and effective communication. Additionally, the goals for Patient Safety involve accurate patient identification, bolstering communication efficacy, ensuring safe usage

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of critical medications, verifying surgical sites and procedures, and curbing infection and fall-related risks. To actualize a robust patient safety initiative, the journey entails fostering an appreciation for patient safety, guiding and backing staff in incorporating risk mitigation strategies, creating robust reporting mechanisms, engaging with and keeping patients informed, exchanging insights and best practices on patient safety, and establishing safeguards to avert injuries via a comprehensive patient safety framework.

Hospitals with more extensive resources often implement a broader range of patient safety measures and infection control protocols. To advance patient safety initiatives in hospitals, policymakers should require the allocation of dedicated full-time staff to oversee patient safety. Additionally, financial backing for hospitals is essential to maintain long-term safety programs (Fukuda, Imanaka, Hirose, & Hayashida, 2009).

Efforts to control infections aim to stop their spread among patients and healthcare providers, particularly nurses. Hospital infection incidents, like phlebitis, are on the rise. Studies show that the most significant factor influencing nurses' adherence to universal precautions and infection control is resource availability, with a coefficient B value (3.462) and odds ratio (31.896) surpassing other variables. Managing this aspect is crucial to curb the growth of Healthcare-Associated Infections (HAIs) and enhance the quality of care (Purbandaru, & Supriyadi, 2022).

Hospitals primarily exist to safeguard patients, making patient safety paramount among the five key safety concerns they address. This is crucial as patient safety directly impacts a hospital's quality and standing. With the swift progress in science and technology, hospital healthcare has become increasingly intricate. Careless or incorrect practices can lead to patient safety incidents, encompassing unexpected incidents, near miss events, no harm events, and potential harm conditions (Rija, 2023).

The latest data and statistics indicate that medical accidents remain a serious issue in many countries. In Indonesia, reports on patient safety incidents show that unexpected incidents account for 14.41% and near miss events for 18.53%. These are caused by clinical processes or procedures (9.26%), medication (9.26%), and patient falls (5.15%) (Nugraheni, Yuliani, & Veliana, 2021). The number of patients experiencing injuries or losses due to medical errors underscores the urgent need to continually improve patient safety systems. This scoping review aims to analyze issues related to patient safety, factors influencing patient safety, and innovative efforts to achieve optimal patient safety goals.

## RESEARCH METHOD

This study utilizes a scoping review methodology. The decision to use a scoping review stems from its ability to delve into research topics more expansively. The study's process encompasses establishing research queries, pinpointing keywords for article searches, conducting article searches using the selected keywords, evaluating and structuring the findings from the article reviews, and crafting the research report. To pinpoint a range of topics linked to patient safety in hospitals, the study employs the PRISMA Extension for Scoping Review (PRISMA-ScR)..

The scoping review sourced its articles from PubMed and Google Scholar databases. The search utilized keywords such as "patient safety OR patient safety culture" AND "universal precautions OR infection control and prevention" AND "hospital". The study's central query was: what methods are hospitals using to implement infection risk prevention to improve patient safety?

The chosen articles from journals were primarily research articles with titles such as "Factors associated with patient safety and infection control," available in full text and open access. Data for the research came from Google Scholar publications (n=12,900) and PubMed (n=2,349). The article screening process yielded the following results: duplicates (n=10,357), exclusions (n=9,982), screened articles (n=375), full-text articles eligible for review (n=75), articles excluded due to mismatched objectives (n=300), articles meeting the review criteria (n=26), and articles that underwent review (n=26).

The criteria for including studies in this scoping review are that they must be hospital-based, assess patient safety practices, be primary research, and be

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written in either English or Indonesian, with publication dates ranging from 2018 to 2023. Conversely, the review's exclusion criteria encompass systematic reviews, meta-analyses, or articles focusing on patient safety methodology. The author conducted the data extraction to streamline the analysis of the articles under review, which involved compiling information into a manual table. This table details the author, publication year, country, study methodology, sample size and population, research focus, and findings. The extraction table's creation aims to facilitate the analysis of the review's findings.

In this phase, literature was extracted and mapped by analyzing the chosen articles. These selected articles were organized into a table that included references, country of origin, objectives, methodologies, and findings. Additionally, an analysis was performed by contrasting the similarities and discrepancies among the articles as presented in the literature.

## RESEARCH RESULTS

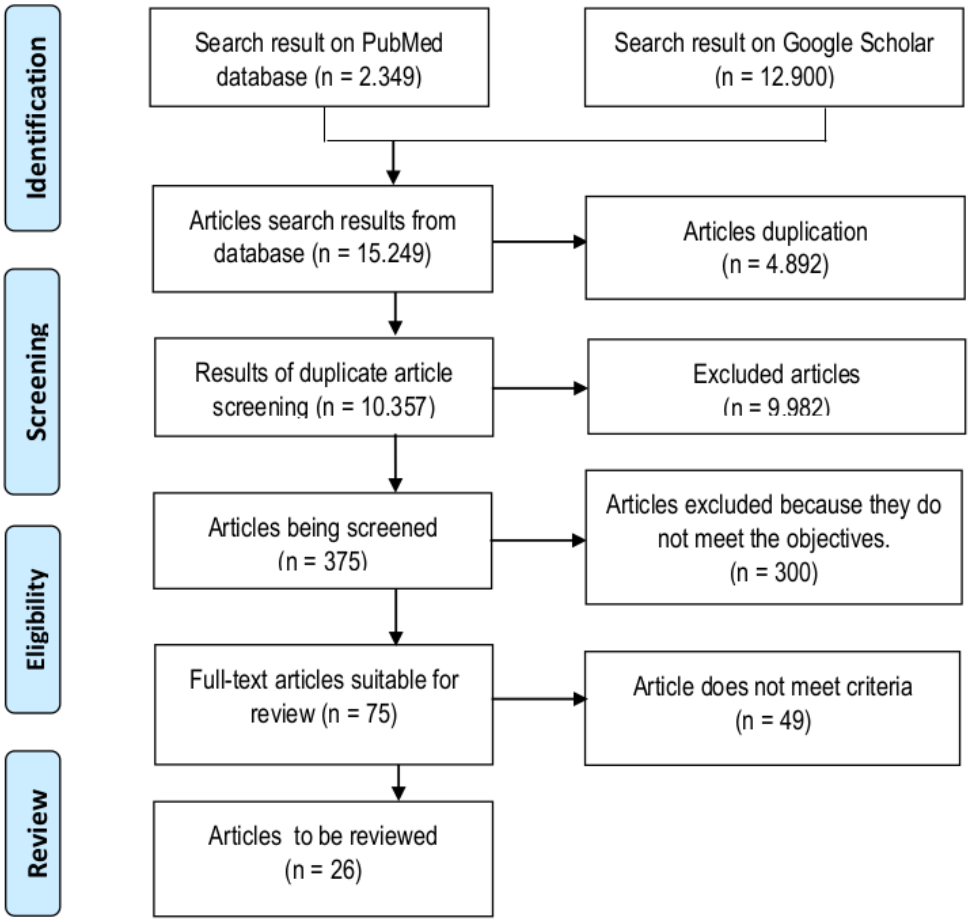


**Figure 1. Flow Chart of Article Screening**

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**Results Analysis of The Selected Articles**

| Author | Country | Purpose | Method | Result |
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| (Guijarro, Andrés, Mira, Perdiguero, & Aibar, 2010) | Spain | To analyze and compare patients' perceptions and opinions regarding patient safety in hospitals | Searching 10 databases (EMBASE, MEDLINE, PsychINFO, SCOPUS, Science Citation Index Expanded, Social Science Citation, IME, Sociological Abstracts, LILACS, and The Cochrane Library) to identify articles and reports on patient safety perceptions published between 1989 and 2006. | From 699 articles, 18 articles were selected: eight articles determined the frequency of experiences related to side effects and patient-reported safety perceptions, seven focused on the impact of side effects related to communication with patients, and three articles contained patient opinions on the management and disclosure of adverse events and suggestions to prevent them. |
| (Olds, & Clarke, 2010). | USA | To determine the relationship between extended nurse working hours and unexpected incidents and errors, including needlestick injuries, work-related injuries, patient falls due to injury, nosocomial infections, and medication errors. | Using bivariate and multivariate logistic regression, secondary analysis of these 11,516 registered nurses examined nurse characteristics, working hours, as well as adverse events and errors. | All variables of adverse events and errors were significantly associated with working more than 40 hours per week on average. Medication errors and needlestick injuries had the strongest and most consistent relationship with working hours and voluntary overtime. |
| (Smits, Zegers, Groenewegen, Timmermans, Zwaan, Van der Wal, & Wagner, 2010). | Netherlands | To identify the causes of unexpected incidents and prevention strategies to minimize their occurrence in hospitalized patients. | For the 744 AEs identified in the patient record review study at 21 hospitals in the Netherlands, trained reviewers were asked to select all contributing factors to each AE. The results were analyzed alongside data on preventability and consequences of the AEs. Additionally, reviewers selected one or more prevention strategies for each preventable AE. The | The primary causes of AEs were human factors (61% of AEs), 61% of which were preventable and 13% resulted in permanent disability. In 39% of AEs, patient-related factors were involved, 14% were organizational factors, and 4% were technical factors. Organizational causes |



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| | | | recommended prevention strategies were analyzed along with four common categories of causes: technical, human, organizational, and patient-related. | relatively frequently contributed to preventable AEs (93%) and AEs resulting in permanent disability (20%). Recommended strategies to prevent AEs included quality assurance/peer review, safety behavior evaluation, training, and procedures. For AEs caused by human and patient-related factors, most reviewers recommended quality assurance/peer review. AEs caused by organizational factors were considered preventable by improving procedures. |
| (Dodson, Reynolds, Bao, Al-Khatib, Peterson, Kremers, & NCDR. 2014). | India | To provide better information to patients and doctors about the estimated risk of unexpected incidents, and to assist hospitals in improving outcomes for patients undergoing implantable cardioverter defibrillation (ICD). | We analyzed data from 240,632 ICD implantation procedures between April 1, 2010, and December 31, 2011, in the registry. The study group was divided into derivation (70%) and validation cohorts (30%). Multivariable logistic regression was used to identify factors associated with hospital adverse events (complications or death). A risk score was developed based on beta estimates derived from the logistic model. A hierarchical model was then used to calculate a standardized risk-adjusted complication rate to account for differences in case mix and procedure volume. | Overall, 4,388 patients (1.8%) experienced at least 1 complication or death in the hospital. Thirteen factors were independently associated with an increased risk of adverse outcomes. The model performed similarly in the derivation and validation groups (C-statistics = 0.724 and 0.719, respectively). The risk score categorized patients into low and high-risk subgroups for adverse events (≤10 points, 0.3%; ≥30 points, 4.2%). The standardized risk-adjusted complication rate varied significantly across hospitals (median: 1.77, interquartile range 1.54, 2.14, 5th/95th percentile: 1.16/3.15). |
| (Rafter, Hickey, Condell, Conroy, O'connor, | Ireland | To discuss the need for a safety culture that can be learned from unexpected | There are various methods to collect adverse event data both retrospectively and prospectively, but these methods do not always capture the same events, and | - 10% of patients admitted to hospitals are associated with unexpected incidents resulting in prolonged hospital stays, |

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| Vaughan, & Williams, 2015). | | incidents and to explain how to measure them. | there is variability in the definition of adverse events. For example, hospital incident reporting only captures a small portion of the adverse events found in retrospective chart reviews. | disability, or death, caused by healthcare service management.<br>- In addition to significantly impacting patient morbidity and mortality, unexpected incidents also lead to increased healthcare costs due to longer hospital stays.<br>- Moreover, most unexpected incidents can be prevented through identifying the nature and level of unexpected incidents, and initiatives to improve services can be developed.<br>- There are various methods to collect unexpected incidents data both retrospectively and prospectively, but these methods do not always capture the same events, and there is variability in the definition of unexpected incidents. |
| (Zegers, Hesselink, Geense, Vincent, & Wollersheim, 2016). | England | To provide an overview of effective interventions to reduce HCAIs in hospitals. | Two reviewers independently assessed the quality of each study and extracted data regarding the study population, study design, intervention characteristics, and adverse patient outcomes. | Sixty systematic reviews with moderate to high quality were included. Statistically significant combined effect sizes were found for 14 types of interventions, including: (1) multicomponent interventions to prevent delirium; (2) rapid response teams to reduce cardiac arrest and mortality rates; (3) pharmacist interventions to reduce adverse drug events; (4) exercise and multicomponent interventions to prevent falls; and (5) care bundles, checklists, and reminders to reduce infections. The majority (82%) of significant impact measures were |

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| | | | | based on 5 or fewer primary studies with experimental study designs. |
| Budikayanti, Qadri, Syeban, Indrawati, & Octaviana, 2018) | Indonesia | To determine the prevalence of unexpected incidents in the administration of antiepileptic drugs. | The questionnaire method was translated from English into an Indonesian version. Validity and reliability were tested using Spearman's correlation and Cronbach's alpha measurement. | The most common AE were fatigue (67.8%), drowsiness (66.7%), memory problems (62.2%), and difficulty concentrating (56.7%). The only clinical variable affecting AE was polytherapy. Conclusion: The Indonesian version of LAEP is a valid and reliable instrument for screening AE or AED in PWE. Almost all subjects in this study were suspected to have AE. Polytherapy is an independent factor affecting AE. |
| (Triwibowo, Yuliawati, & Husna, 2016). | Indonesia | To determine the relationship between handover and patient safety. | This study used total sampling by inviting 62 nurses at Sidawangi Hospital in Central Java Province to participate. Data collection was done using a closed questionnaire. Data analysis was conducted using the Chi-Square test. | The research results showed that 53.2% of nurses conducted handovers well, and 51.6% of patient safety fell into the good category. The Chi-Square test results indicated a significant relationship between the implementation of handover and patient safety in the hospital (p 0.04). The conclusion is that handover contributes to patient safety in the hospital. |
| Wu, Shapiro, Harrison, Scott, Connors, Kenney, & Vanhaecht,2020) | USA | To explore the terminology used to describe professional staff involved in unexpected incidents and the services to support it. | This article explores the terminology used to describe professionals involved in adverse events and the services to support them. | - The importance of emotional support for doctors and healthcare workers related to adverse events.<br>- Policies related to the comfort and safety of healthcare workers. |

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| (Zanetti, Gabriel, Dias, Bernardes, Moura, Gabriel, & Lima Júnior, 2020). | Spain | To evaluate the prevalence of adverse events and their preventive efforts retrospectively to assess occurrences and prevention of adverse events in hospitals. | The methodology framework used is an integrative literature review, structured in six stages: defining the problem and research objectives; applying inclusion and exclusion criteria for publications and literature searches; categorizing primary studies; analyzing studies included in the integrative review; interpreting results; and presenting the review by synthesizing the generated knowledge. | In the 13 selected studies, instruments used to assess the occurrence of adverse events included the Harvard Medical Practice Study, Canadian Adverse Event Study, Quality in Australian Health Care Study, and Global Trigger Tool. The incidence ranged from 5.7 to 14.2%, while prevention capabilities ranged from 31 to 83%. |
| (Nugraheni, Yuliani, & Veliana, 2021). | Indonesia | To understand the implementation of patient safety culture and incidents in hospitals. | The type of research is a literature study, and the author conducted a literature search using Google Scholar. Literature was selected based on inclusion and exclusion criteria. Data processing includes data extraction and data synthesis. Data analysis and presentation are done descriptively. | The barriers to patient safety culture in hospitals include, staff behavior, management support, lack of standard operating procedures, inadequate facilities, and the absence of supervision and evaluation of the implementation of patient safety culture. |
| (Abraham, Meyer, Godman, & Helberg, 2023). | South Africa | To understand the patient safety culture in high-risk wards of a tertiary hospital in South Africa. | Quantitative, descriptive, cross-sectional methodology was used, employing a survey questionnaire measuring 10 dimensions of safety and one outcome measure among clinical staff and nurses. | Two hundred participants completed the survey questionnaire. Strength areas identified by the participants included organizational learning (91.09%), staff attitudes (88.83%), and perceptions of patient safety (76.65%). Dimensions with potential for improvement included awareness and training (74.04%), litigation (73.53%), feedback and communication about errors (70.77%), non-punitive response to error reporting (51.01%), hospital size and tertiary level (53.76%), and infrastructure and resources (58.07%). The only dimension identified as weak was |

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| | | | | teamwork and staffing (43.72%). In terms of patient safety levels, respondents rated their hospital units highly but assessed the hospital overall as having poor patient safety levels. |
| (de Quadros, Wachs, de Magalhães, Severo, Tavares, & Dal Pai, 2023). | Brazil | To identify the inherent variability in daily work in fall prevention, the strategies used by professionals to address it, and opportunities for work management improvement as envisioned. | A mixed-methods approach was conducted through process modeling and semi-structured interviews. This research was carried out at a public university hospital in southern Brazil. Learning steps included: modeling defined work, identifying falls, modeling daily work, and reflecting on the gap between the work performed and the work envisioned. Medical records, management reports, incident logs, protocols, and care procedures were consulted to model the work processes, and semi-structured interviews were conducted with 21 nursing professionals. | From July 2018 to July 2019, there were 447 instances of falls, with 2.7% resulting in moderate to severe injuries. The variability occurred in the orientation of companions and the certainty of ambulation of the accompanied patients. Professionals identified individual strategies to prevent falls, the importance of multi-professional work, learning with the work team, and the expertise of colleagues, as well as suggesting improvements in the physical environment. |
| (Gazali, 2023). | Indonesia | To explore the implementation of patient safety culture with 6 Patient Safety Goals (PSGs). | This study uses a qualitative method with a phenomenological design. Data collection was conducted through in-depth interviews and observation methods involving ten participating practicing nurses. The data analysis employed Collaizi's analysis technique. | The research results indicate phenomena regarding the understanding and implementation of the 6 Patient Safety Goals (PSGs), namely: (1) Identifying the patient; (2) Effective communication; (3) Medication supervision; (4) Proper and correct surgical site marking; (5) Infection prevention, including hand washing (five moment hand hygiene); (6) Preventing patient falls. |
| (Ge, Wu, Zang, & Xie, 2023). | China | To determine the effectiveness of a nursing care process | Mixed methods, A total of 120 CTO patients undergoing percutaneous coronary intervention (PCI) | The intervention group had a significantly shorter preoperative care time and |

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| | | based on a checklist for patients undergoing Chronic Total Occlusion (CTO) intervention, including the duration of care, patient anxiety, increased patient satisfaction, and occurrence of side effects. | were selected in our hospital and divided into an intervention group (n=60, adopting a nursing care process based on a checklist for patient care) and a control group (n=60, adopting nursing care according to the existing workflow) based on different nursing interventions. | significantly reduced the number of side effects compared to the control group (P < 0.05). Postoperative Self-Rating Anxiety Scale (SAS) scores in the intervention group were significantly lower than in the control group (P < 0.05). Doctor and patient satisfaction in the intervention group were significantly higher than in the control group (P < 0.05). |
| (Ghezaywi, Alali, Kazzaz, Ling, Esabia, Murabi, & Antar, 2024). | Arab Saudi | To evaluate the patient safety improvement program in medication administration. | A multidisciplinary quality improvement team reviewed baseline data and analyzed medication errors that occurred in 2019. Five cycles of the Plan-Do-Study-Act were implemented. As an outcome measure, the medication error rate was monitored. | The outcome measure of the medication error rate was monitored every quarter. There was a 75% improvement during the first quarter of 2021, reaching zero medication errors/1000 patient days by the first quarter of 2022. The reduction in medication errors was attributed to increased situational awareness and improved compliance with assistive technology. |
| (Hashemian, Salami, Azizpour, & Mirzaei, 2023). | Iran | To assess the safety of intrahospital transfers (IHT) for critically ill patients by gathering feedback from emergency unit and intensive care unit (ICU) nurses. | A cross-sectional study was conducted in Ardabil City, Iran, at an educational and medical hospital. This study involved 288 emergency and ICU nurses. Data was collected through paper-based forms, which included demographic and job-related characteristics as well as an IHT safety scale. | The average IHT score was 75.2±15.53. Multiple regression analysis results showed that work experience (B=0.291, p=0.011), perception of IHT safety (B=0.196, p=0.003), education level (B=−0.123, p=0.038), and equipment checking (B=−0.121, p=0.045) were predictors of IHT safety. |

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| (He, Chen, Tian, Long, Li, Yang, & Tang, 2023). | China | To investigate the perceptions of patient safety culture and related factors among clinical managers in tertiary hospitals. | A cross-sectional survey was conducted from June 19 to July 16, 2021, involving 539 clinical managers from four tertiary hospitals in Changsha City, Hunan Province. The Hospital Survey on Patient Safety Culture (HSOPSC) was used to assess perceptions of patient safety culture. Bivariate analysis, multivariable linear regression, and logistic regression were performed. | The average score for the total HSOPSC was 72.5 ± 7.6, with dimension scores ranging from 62.1 (14.9) to 86.6 (11.7). Three dimensions showed positive response rates (PRR) < 50%, indicating areas needing improvement: "nonpunitive response to error" (40.5%), "staffing" (41.9%) and "frequency of reported events" (47.4%). Specialty hospitals (β = 1.744, P = 0.037), female gender (β = 2.496, P = 0.003), higher professional degree (β = 1.413, P = 0.049), higher education level (β = 1.316, P = 0 .001), and shorter shift delay time (β=-1.13, P < 0.001) correlated with higher perceptions of patient safety culture. Education level, working department, "teamwork within units," "management support for patient safety," "openness of communication," and the "staffing" dimension were associated with patient safety scores (all P < 0.05). Length of employment at the hospital, job position, education level, working department, hospital nature, professional title, "openness of communication," and "handoff & transition" were associated with the number of reported adverse events (all P < 0.05). |
| (Maharani, & Yugatama, 2023). | Indonesia | To provide reliable information on the prevalence of drug side effects in Indonesia. | A literature search of PubMed and Google Scholar databases from 2011 to 2021 was conducted using the main keywords "ADRs" and "Indonesia," along | The prevalence of ADRs in Indonesia ranges from 0.9% to 99% depending on drug usage, duration, and dosage of therapy. Insulin, |

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| | | | with additional keywords based on the database used. We followed the PRISMA 2020 statement guidelines to prepare this review. Critical appraisal and risk of bias assessment were carried out using the CONSORT, STROBE, CARE, and MINORS guidelines based on the type of article. | cardiovascular agents, and anti-inflammatories are the drugs with the highest incidence of ADRs (with maximum percentages in previous studies exceeding 60%). The prevalence of ADRs in Indonesia varies and depends on the reporting methods used. There is a need for an annual national report on ADRs in Indonesia using similar survey techniques and calculations to produce accurate prevalence data on ADRs. |
| (Parreira, Burns, Moldawer, Zomordian, Bandali, Virdee, & Wood, 2023). | Ukraine | To discuss the management of adverse events arising from commonly associated treatment with axitinib plus immune-oncology therapy, highlighting the specific role of oncology nurses in managing these occurrences, and providing AE management resources to assist oncology nurses. | The author's experience, journal articles, and treatment guidelines were used. | The use of oncology nurses and nurse-led innovations to monitor and assess treatment can have a positive impact on managing AEs in cancer patients by identifying those at highest risk, providing regular assessments, appropriate patient education, and supporting disease monitoring for patient safety. |
| (Poku, Attafuah, Anaba, Abor, Nketiah-Amponsah, & Abuosi, 2023). | Ghana | Assessing the occurrence and types of patient safety in healthcare facilities in Ghana. This report also examines the role of teamwork, information handover and exchange, as well as communication openness in responding to | A cross-sectional study was conducted on 1,651 healthcare workers in three regions of Ghana. Using a multi-stage sampling technique, the Hospital Survey on Patient Safety Culture questionnaire and scales reported by nurses were used to collect data and analyzed using descriptive statistics, Pearson correlation, and multiple linear regression models at a significance level of 0.05. | There were reports of PSI prevalence including medication errors (30.4%), wound infections (23.3%), infusion reactions (24.7%), pressure ulcers (21.3%), and falls (18.7%) at least once in a month. There were satisfactory average scores for response to adverse events (3.40), teamwork (4.18), handover and exchange of information |

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| | | patient safety incidents by healthcare workers. | | (3.88), and communication openness (3.84) among healthcare professionals. Teamwork, handover and exchange of information, and communication openness were significant predictors of response to PSI, accounting for 28.3% of the variance. |
| (Ramírez-Torres, Rivera-Sanz, Cobos-Rincon, Sufrate-Sorzano, Juárez-Vela, Gea-Caballero, & Santolalla-Arnedo, 2023). | Spain | Analyzing the perception of patient safety culture among nursing students and comparing patient safety outcomes between different nursing groups in different years. | A descriptive cross-sectional study was conducted with nursing students (n=266) from the first to the fourth year at a university in Spain. | Significant differences were found between the year of nursing degree study and whether specialized training on patient safety culture had been received or not. Nursing students who had received specialized training scored lower than others on all questionnaire items, but only the "good practices" (p=0.00) and "frequency of reported incidents" (p=0.0012) indicators showed significant differences. In some cases, fourth-year students had lower average scores in "perception of patient safety in the unit/sector," "good practices indicator," and "total score." |
| (Rogers, & Irving, 2023). | South Africa | To explore the attitudes, knowledge, and practices of inpatient ward nurses regarding the use of fall risk assessment tools, fall policies in the institution, and fall prevention. | Survey design was used. All permanent ward nurses were eligible to participate, and convenience sampling was employed. | Nurses support the Morse Fall Scale, recommended by institutional policy, as it's effective in reducing fall incidents and indicates that reporting incidents measures progress in fall event monitoring. Fall prevention training is minimal; however, nurses are highly interested in providing further education on falls. |

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| (Sánchez-García, Saurín-Morán, Carrillo, Tella, Põlluste, Srulovici, & Mira, 2023) | European Union | To review the patient safety curriculum in undergraduate medical and nursing education programs. | A review of the medical and nursing school curricula in 206 universities was conducted, using their websites to search for subjects that address "patient safety", "service quality", "risk management", "safe practices", "interprofessional communication", "adverse events", and "second victim". | Our study shows that patient safety, especially the phenomenon of the second victim, is still overlooked in the medical and nursing curricula in European universities, although some positive initiatives were also found. |
| (Sun, Lu, Gao, Li, Cheng, Liu, & Cao, 2023). | China | Exploring the influence of patient safety culture on nurse distress and the desire to change jobs as a second victim. | This study used a cross-sectional design. From July 2020 to August 2020, convenience sampling methods were used to select 1,525 clinical nurses from hospitals with different levels in Shandong Province as study subjects. Data were collected using a general data survey, patient safety culture scale, and hospital pain assessment entry scale, along with the second victim experience and support scale, employing convenience sampling methods. | Patient safety culture is a factor that influences second-victim pain and turnover intention. Among these, non-punitive response to errors, open communication, collaboration between different departments, organizational learning, and promotion have a statistically significant impact on the pain of the second victim and intention to leave. |
| (Tarrahi, Farzi, Farzi, Shahzeydi, Saraeian, Moladoost, & Pebdeni, 2023). | Iran | Evaluating the medication safety culture from the perspective of healthcare providers. | This descriptive cross-sectional study was conducted in selected teaching hospitals affiliated with Isfahan University of Medical Sciences, Isfahan, Iran, in 2021. The participants were healthcare providers involved in the medication process. Sampling was done using a quota method. The research instrument was a demographic questionnaire and the Medication Safety Climate (MSC) survey. | The overall average positive response to the MSC items was 64.1%, indicating a moderate level of MSC. The collected data were managed using SPSS software (v.16.0) and summarized using descriptive statistical measures such as mean, standard deviation, frequency, and percentage. The lowest and highest average values were related to management support for medication safety. |

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## DISCUSSION

Preventing infection risks in hospital patients is a crucial aspect of healthcare. Here are some key points to know about preventing infection risks in hospitals to enhance patient safety. Preventive Measures: Preventing infections in hospitals is a shared responsibility of all healthcare team members, including healthcare workers, patients, and families. Compliance with guidelines and proper practices is key to reducing infection risks related to medical care; Hand Hygiene: Hand hygiene is the most important step in infection prevention. All healthcare workers, patients, families, and visitors should regularly wash their hands with soap and water or use hand sanitizer. Patients and families should also be instructed to wash their hands regularly, especially before meals and after using the toilet; Isolation: Patients with contagious diseases should be isolated from other patients to prevent infection spread. This includes airborne isolation for diseases that can be transmitted through the air; Personal Protective Equipment (PPE): Healthcare workers should use PPE such as gloves, masks, protective eyewear, and gowns when caring for potentially infected patients; Sterilization and Disinfection: Medical tools and equipment should be properly sterilized or cleaned to avoid infection transmission. Appropriate disinfectant products should be used; Vaccination: Healthcare workers should be vaccinated according to schedule to protect themselves and patients from specific contagious diseases like influenza and hepatitis B; Wise Antibiotic Use: Inappropriate antibiotic use can lead to antibiotic resistance. Doctors should use them only when necessary and according to proper guidelines. Hospitals should have an antibiotic control program to ensure rational and effective antibiotic use; Medical Waste Management: Medical waste should be safely disposed of according to regulations and guidelines to prevent infection spread; Environmental Infection Control: Hospitals should implement strict infection control protocols, including infection surveillance, to identify and control infection spread within the hospital; Patient Education: Patients and their families should be educated about hygiene practices, signs of infection, and the importance of reporting if they experience infection symptoms; Risk Assessment: Hospitals should regularly conduct infection risk assessments to identify areas that may have a high risk of infection transmission.

Patient safety implementation in hospitals is influenced by various factors involving human, technological, policy, and work environment aspects. Integrating and managing these factors wisely can create a safer hospital environment and improve overall patient safety. Given the complexity of patient safety challenges, structured initiatives are required to improve safety and healthcare service quality in hospitals. Some innovative efforts include, Health Information Management Using Technology: Engaging patients and families in care decision-making; Healthcare Worker Training: Providing regular training to healthcare workers to increase awareness of safety practices and recent changes in regulations or guidelines.

Patient safety is an integral aspect of effective healthcare, and continuous efforts are needed to enhance and maintain high safety standards in hospitals. Integrated Care: Efforts to improve patient safety require the involvement of all stakeholders, including healthcare workers, hospital management, patients, and their families. Active involvement from all parties will create a sustainable safety culture integrated into every aspect of care.

## CONCLUSION

Infection Risk Prevention: Measures for infection prevention, such as hand hygiene, patient isolation, PPE use, sterilization, vaccination, prudent antibiotic use, medical waste management, environmental infection control, patient education, and risk assessment, are essential components of efforts to enhance patient safety.

Factors Influencing Patient Safety: Safety culture, training and education, information and technology systems, policies and procedures, monitoring and reporting, facility and environmental design, resource availability, and patient rights and family involvement all play significant roles in implementing patient safety in hospitals.

Innovative Efforts: Engaging technology in health information management, patient involvement in

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treatment decision-making, regular training for healthcare professionals, and integrated services involving all stakeholders are some innovative efforts that can be undertaken to improve patient safety.

## REFERENCES

Abraham, V., Meyer, J., Godman, B., & Helberg, E. (2023). Patient safety culture at the unit level of a tertiary hospital in South Africa: a survey study. *Journal of Public Health in Africa*, 14(5).

Budikayanti, A., Qadri, L. M., Syeban, Z., Indrawati, L. A., & Octaviana, F. (2018). Adverse Events of antiepileptic drugs using indonesian version of Liverpool adverse events profile. *Neurology Research International*, 2018.

de Quadros, D. V., Wachs, P., de Magalhães, A. M. M., Severo, I. M., Tavares, J. P., & Dal Pai, D. (2023). Daily work variability in falls prevention of hospitalized patients: nursing team's perception. *BMC health services research*, 23(1), 931.

Dodson, J. A., Reynolds, M. R., Bao, H., Al-Khatib, S. M., Peterson, E. D., Kremers, M. S., & NCDR. (2014). Developing a risk model for in-hospital adverse events following implantable cardioverter-defibrillator implantation: a report from the NCDR (National Cardiovascular Data Registry). *Journal of the American College of Cardiology*, 63(8), 788-796.

Fukuda, H., Imanaka, Y., Hirose, M., & Hayashida, K. (2009). Factors associated with system-level activities for patient safety and infection control. *Health Policy,* 89(1), 26-36.

Gazali, S. A. (2023). Studi Fenomenologi: Implementasi Budaya Keselamatan Pasien di Rumah Sakit. *Jurnal Kesmas Asclepius,* 5(2), 245-256.

Ge, X., Wu, H., Zang, Z., & Xie, J. (2023). Application of checklist-based nursing care process in patients undergoing intervention for coronary chronic total occlusions: a quasi-randomized study. BMC Cardiovascular Disorders, 23(1), 591.

Ghezaywi, Z., Alali, H., Kazzaz, Y., Ling, C. M., Esabia, J., Murabi, I., & Antar, M. (2024). Targeting zero medication administration errors in the pediatric intensive care unit: A Quality Improvement project. *Intensive and Critical Care Nursing,* 81, 103595.

Guijarro, P. M., Andrés, J. A., Mira, J. J., Perdiguero, E., & Aibar, C. (2010). Adverse events in hospitals: the patient's point of view. *BMJ Quality & Safety*, *19*(2), 144-147.

Hashemian, M., Salami, Z., Azizpour, I., & Mirzaei, A. (2023). Evaluation of the safety status of intrahospital transfer of critically ill patients from the perspective of emergency and ICU nurses: a cross-sectional study in Iran. *BMJ open,* 13(10), e072584.

He, H., Chen, X., Tian, L., Long, Y., Li, L., Yang, N., & Tang, S. (2023). Perceived patient safety culture and its associated factors among clinical managers of tertiary hospitals: a cross-sectional survey. *BMC nursing*, 22(1), 329.

Maharani, L., & Yugatama, A. (2023). Prevalence of adverse drug reaction in Indonesia: A systematic review. *Journal of Applied Pharmaceutical Science*, 13(8), 055-067.

Nugraheni, S. W., Yuliani, N., & Veliana, A. D. (2021). Studi Literatur: Budaya Keselamatan Pasien dan Insiden Keselamatan Pasien di Rumah Sakit. In *Prosiding Seminar Informasi Kesehatan Nasional* (pp. 290-295).

Olds, D. M., & Clarke, S. P. (2010). The effect of work hours on adverse events and errors in health care. *Journal of safety research*, 41(2), 153-162.

Parreira, S., Burns, K., Moldawer, N., Zomordian, N., Bandali, N., Virdee, K., & Wood, L. S. (2023). The role of nurses in the management of adverse events in patients receiving first-line Axitinib plus immuno-

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DOI: https://doi.org/10.33024/minh.v7i2.229

oncology agents for advanced renal cell carcinoma. In *Seminars in Oncology Nursing* (p. 151545). WB Saunders.

Poku, C. A., Attafuah, P. Y. A., Anaba, E. A., Abor, P. A., Nketiah-Amponsah, E., & Abuosi, A. A. (2023). Response to patient safety incidents in healthcare settings in Ghana: the role of teamwork, communication openness, and handoffs. *BMC Health Services Research*, 23(1), 1072.

Purbandaru, E. P., & Supriyadi, S. (2022). Tindakan Pengendalian Infeksi Pada Perawat di Ruang Rawat Inap di Rumah Sakit Kota Semarang. *Link*, *18*(2), 141-148.

Rafter, N., Hickey, A., Condell, S., Conroy, R., O'connor, P., Vaughan, D., & Williams, D. (2015). Adverse events in healthcare: learning from mistakes. QJM: *An International Journal of Medicine*, 108(4), 273-277.

Ramírez-Torres, C. A., Rivera-Sanz, F., Cobos-Rincon, A., Sufrate-Sorzano, T., Juárez-Vela, R., Gea-Caballero, V., & Santolalla-Arnedo, I. (2023). Perception of patient safety culture among nursing students: A cross-sectional study. *Nursing Open*, 10(12), 7596-7602.

Rija, M. W. (2020). Budaya Dalam Lingkup Kerja Keperawatan Dalam Peningkatan Keselamatan Pasien.

Rogers, C., & Irving, A. (2023). Nurses' perspectives on inpatient falls in a large academic hospital in South Africa. Curationis, 46(1), 2479.

Sánchez-García, A., Saurín-Morán, P. J., Carrillo, I., Tella, S., Põlluste, K., Srulovici, E., & Mira, J. J. (2023). Patient safety topics, especially the second victim phenomenon, are neglected in undergraduate medical and nursing curricula in Europe: an online observational study. *BMC nursing*, 22(1), 283.

Smits, M., Zegers, M., Groenewegen, P. P., Timmermans, D. R. M., Zwaan, L., Van der Wal, G., & Wagner, C. (2010). Exploring the causes of adverse events in hospitals and potential prevention strategies. *Quality and Safety in Health Care,* 19(5), e5-e5.

Sun, L., Lu, Q., Gao, W., Li, X., Cheng, J., Liu, D., & Cao, Y. (2023). Study on the influence of patient safety culture on the pain and turnover intention of Chinese nurses in adverse nursing events. *Nursing Open,* 10(10), 6866-6874.

Tarrahi, M. J., Farzi, S., Farzi, K., Shahzeydi, A., Saraeian, S., Moladoost, A., & Pebdeni, A. S. (2023). Medication safety climate from the perspectives of healthcare providers: A cross-sectional study. *Journal of Education and Health Promotion,* 12(1), 195.

Triwibowo, C., Yuliawati, S., & Husna, N. A. (2016). Handover sebagai upaya peningkatan keselamatan pasien (patient safety) di rumah sakit. *Jurnal Keperawatan Soedirman*. Vol 11 (2), Hal 77, 79.

Wu, A. W., Shapiro, J., Harrison, R., Scott, S. D., Connors, C., Kenney, L., & Vanhaecht, K. (2020). The impact of adverse events on clinicians: what's in a name? *Journal of patient safety*, 16(1), 65-72.

Zanetti, A. C. B., Gabriel, C. S., Dias, B. M., Bernardes, A., Moura, A. A. D., Gabriel, A. B., & Lima Júnior, A. J. D. (2020). Assessment of the incidence and preventability of adverse events in hospitals: an integrative review. *Revista Gaucha de enfermagem,* 41, e20190364.

Zegers, M., Hesselink, G., Geense, W., Vincent, C., & Wollersheim, H. (2016). Evidence-based interventions to reduce adverse events in hospitals: a systematic review of systematic reviews. *BMJ open,* 6(9), e012555.

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